

SECTION 01400
QUALITY CONTROL AND SURVEYING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The CONTRACTOR's quality control program and control procedures in executing the work.
- B. Inspection, testing, and laboratory services.
- C. Surveying and as-built drawings.

1.2 SUBMITTALS

- A. The CONTRACTOR shall submit with the Precon submittals a description of the proposed organization for the project, including but not limited to, project management, field supervision, and quality control functions, key project personnel, and a description of the related experience of each.
- B. The CONTRACTOR shall submit a statement and description of the CONTRACTOR's overall quality control program along with the pre-construction submittals.

1.3 QUALITY CONTROL (QC) PROGRAM

The CONTRACTOR's QC program shall include the following activities, at a minimum:

- 1. Field supervision and inspection practices.
- 2. Quality control over subcontractors, suppliers, and other services engaged on the project.
- 3. Shop drawing coordination and checking procedures, including submittals from product manufacturers and subcontractors.
- 4. Methods for protecting finished work prior to Contract completion, which shall remain the responsibility of the CONTRACTOR until final acceptance of the work as required in Section 01500 CONSTRUCTION REQUIREMENTS, SERVICES, AND TEMPORARY CONTROLS.
- 5. CONTRACTOR-retained independent testing firm and laboratory to perform testing at the locations and frequencies specified in the Contract Documents, or as required by the ENGINEER.
- 6. No construction work shall be concealed until the ENGINEER has inspected (including any required OWNER or independent third-party inspection), approved, and recorded the work.

1.4 INSPECTION AND TESTING LABORATORY

- A. Independent testing firm and laboratory services shall be used to inspect and test certain work where specified. These laboratories shall have the necessary type and number of equipment and facilities to perform the applicable tests specified in these Contract Documents in a timely fashion.
- B. The CONTRACTOR shall be responsible for all testing firm and laboratory services required for review by the ENGINEER as described in the Specifications. Any additional quality control test or re-test directed by the ENGINEER shall be conducted at no additional cost to the OWNER. The results of all testing shall be included in a report sealed by a professional engineer licensed to practice in the Commonwealth of Virginia and certified by the testing laboratory. The engineer shall have at least 5 years of experience with the construction of similar projects in Virginia.
- C. The CONTRACTOR shall schedule and monitor testing and laboratory services and shall promptly provide the OWNER or his designated representative with all inspection and testing results. Failure to submit test results promptly will result in work stoppage and withholding of payment. The CONTRACTOR shall notify the ENGINEER at least 24 hours before proceeding with any QC testing. The OWNER has the right to retain a quality assurance testing laboratory to provide additional duplicate testing.
- D. The CONTRACTOR shall provide access to the work and fully cooperate with the OWNER and his designated representatives. The CONTRACTOR shall notify the OWNER at least 2 days prior to expected time when work is ready for final inspection, sampling, or testing, if not otherwise specified for the particular work to be tested.
- E. The CONTRACTOR shall include inspection and testing services under the sections where such services are specified in the bid price. Any additional test or retest directed by the ENGINEER shall be conducted at no additional cost to the OWNER.

1.5 LABORATORY REPORTS

- A. After each inspection and test, the CONTRACTOR shall submit copies of the laboratory report to the OWNER, the ENGINEER, and the CONTRACTOR, including date issued, project title and number, name of inspector, date and time of sampling or inspection, identification of product and Specifications section, location in project, type of inspection or test, date of test, results of tests, and conformance with Contract Documents. Reports must be submitted within three (3) days of sample collection or within seven (7) days after the work has been performed.

- B. All results obtained from testing on this project, whether required or not, shall be reported to the ENGINEER.

1.6 LIMITS ON QC TESTING FIRMS AND LABORATORY AUTHORITY

- A. The QC Testing Firm or Laboratory may not release, revoke, alter, or expand on requirements of Contract Documents.
- B. The QC Testing Firm or Laboratory may not approve or accept any portion of Work.
- C. The QC Testing Firm or Laboratory may not assume duties of CONTRACTOR.

1.7 SURVEYING AND AS-BUILT DRAWINGS

- A. The CONTRACTOR shall retain a professional land surveyor licensed in the Commonwealth of Virginia to provide construction layout and to control lines, grades, and elevations during construction. The bid price shall include allowances for all necessary professional surveying services.
- B. Existing Conditions Survey: The existing conditions have been established by Dewberry & Davis LLC based on 2007 field surveying.
- C. The CONTRACTOR shall, upon request of the OWNER, allow the OWNER or the ENGINEER to periodically spot-check locations, lines, grades, elevations, or field notes associated with the work.
- D. As-built Record Drawings shall include, at a minimum, northing and easting coordinates and elevations in the Virginia State Plane Coordinate System (North American Datum '83 and North American Vertical Datum '88, respectively), for the following:
 - 1. Pump station structures including pipe invert elevation and structure top and bottom elevations, force main pipe, manhole pipe invert elevations top of cover elevation.
- E. Upon completion of construction, the CONTRACTOR shall submit a set of as-built construction drawings signed and sealed by a professional land surveyor licensed in the Commonwealth of Virginia. The final as-built drawings shall provide a record of locations, key elevations, and details of all work completed under this Contract. Deliver the final as-built marked prints to the OWNER and ENGINEER for review and approval as part of the final

inspection. The information shown on the as-built drawings and the formats and appearance of the drawings is subject to review and approval of the ENGINEER. The as-built survey for each layer shall be approved prior to beginning work on the overlying layer. The final as-built drawings shall, at a minimum, include the following information:

1. A record of all modifications or changes from the Contract Drawings, however minor, including items uncovered during the work and any additional work not appearing on the original Contract Drawings, which was incorporated in the project. Use notes and details to properly describe the work.
2. All changes resulting from the final inspection.
3. Changes in details of design or additional information obtained from submissions furnished by the CONTRACTOR, including, but not limited to:
 - a. Fabrication
 - b. Erection
 - c. Installation plans and placing details
 - d. Dimensions of foundations
 - e. Utilities connection and tie in inverts
4. Certified copies of the surveyor's notebooks or data logger files, if required by the ENGINEER.

F. The final as-built drawings set shall include, at a minimum:

1. A cover sheet
2. A site location map
3. A legend
4. An index of drawings included in the set
5. Other sheets as required herein

G. During execution of the project, the CONTRACTOR's superintendent shall mark up two sets of full-size paper prints to show the as-built conditions. One copy shall be maintained by, and remain in the possession of, the CONTRACTOR until final inspection. The other copy shall be submitted to the ENGINEER for review one week each month.

H. The CONTRACTOR and the ENGINEER shall jointly review as-built documents specified herein before each pay request is submitted.

1.8 OTHER AS-BUILT RECORDS

Other as-built records required to be maintained and kept up-to-date by the CONTRACTOR and subject to the requirements relating to progress payments in accordance with Section 01315 ACTIVITIES SCHEDULE AND PROGRESS PAYMENTS include:

1. Activities Schedule (Section 01315)
2. List of Submittals, Form CD-06 (Section 01300)
3. Test Log, Form CD-24 (Section 01300)

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION